

## Identity of Electricities

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ground. Hydrogen soon appeared in the tube connected with the kite, and oxygen in the other, and in ten minutes the liquid in the first tube was green from the alkali evolved, and that in the other red from free acid produced. The only indication of the strength or intensity of the atmospheric electricity is in the expression, " the usual shocks were felt on touching the string."

75. That the electricity in this case does not resemble that from any ordinary source of common electricity, is shown *by* several circumstances. Wollaston could not effect the decomposition of water by such an arrangement, and obtain the gases in *separate* vessels, using common electricity; nor have any of the numerous philosophers, who have employed such an apparatus, obtained any such decomposition, either of water or of a neutral salt, by the use of the machine. I have lately tried the large machine (26) in full action for a quarter of an hour, during which time seven hundred revolutions were made, without producing any sensible effects, although the shocks that it would then give must have been far more powerful and numerous than could have been taken, with any chance of safety, from an electrical kite-string; and by reference to the comparison hereafter to be made (107), it will be seen that for common electricity to have produced the effect, the quantity must have been awfully great, and apparently far more than could have been conducted to the earth by a gilt thread, and at the same time only have produced the " usual shocks."<sup>3</sup>

76. That the electricity was apparently not analogous to voltaic electricity is evident, for the " usual shocks " only were produced, and nothing like the terrible sensation due to a voltaic battery, even when it has a tension so feeble as not to strike through the eighth of an inch of air.

77. It seems just possible that the air which was passing by the kite and string, being in an electrical state sufficient to produce the " usual shocks " only, could still, when the electricity was drawn off below, renew the charge, and so continue the current. The string was 1500 feet long, and contained two double threads. But when the enormous quantity which must

have been thus collected is considered (107,112),  
the explanation  
seems very doubtful. I charged a voltaic  
battery of twenty  
pairs of plates four inches square with double  
coppers very  
strongly, insulated it, connected its positive  
extremity with  
the discharging train (28), and its negative pole  
with an appa-  
ratus like that of Mr. Barry, communicating by a  
wire inserted